

**EXHIBIT 75**

**DECLARATION OF CORY SZCZEPANIK IN SUPPORT OF HUAWEI'S  
OPPOSITION TO SAMSUNG'S MOTION FOR SUMMARY JUDGMENT**

# 3GPP TS 36.521-1 V12.8.0 (2015-12)

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**3rd Generation Partnership Project;  
Technical Specification Group Radio Access Network;  
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User Equipment (UE) conformance specification Radio  
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Part 1: Conformance Testing;  
(Release 12)**

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## 8 Performance Requirement

### 8.1 General

The performance requirements for the physical channels specified in TS 36.211 [8] clause 6 (for downlink physical channels) shall be as defined in the respective sections below.

The requirements for the UE in this clause are specified for the downlink reference measurement channels specified in Annex A, the propagation conditions specified in Annex B and the downlink physical channels specified in Annex C.

Unless otherwise stated the throughput measurements in clause 8 shall be performed according to the general rules for statistical testing in Annex G clause G.3.

The requirement for a UE that support E-UTRA in downlink shall be tested according to the declared UE PDSCH category and CA capabilities.

The fading of the signals and the AWGN signals applied to each receiver antenna connector shall be uncorrelated. The levels of the test signal applied to each of the antenna connectors shall be as defined in the respective test cases.

The UE performance in this section is considered to be operating band independent. Therefore, the required performance in the respective test cases can be verified in one of the operating bands supported by the UE under test. All the test points supported by the bands of the multiband UE (based on channel bandwidth, DL and UL configuration) need to be tested.

For CA testing, unless otherwise stated, the logical carriers PCC / SCC are mapped on physical frequencies as defined in Table 8.1-1.

**Table 8.1-1: PCC/SCCs frequency mapping**

| CA Configuration   | PCC-SCC mapping                                | Notes |
|--|--|-------|
| Intra-band CA  | CC1-CC2  | 1     |
| Inter-band CA (CA x-y)   | Bx-By (if not supported by the UE, then By-Bx) | 2     |
| Note 1: Notation CCi-CCj means PCC on component carrier CCi and SCC on component carrier CCj, with CCi/j frequencies defined in the corresponding intra-band contiguous / non-contiguous CA band in TS 36.508.<br>Note 2: Notation Bi-Bj means PCC on component Band i and SCC on component Band j, with single Band i/j frequencies defined in TS 36.508. |  |       |

#### 8.1.1 Receiver antenna capability

The performance requirements are based on UE(s) that utilize one or more antenna receivers.

For all test cases, the SNR is defined as:

$$SNR = \frac{\sum_{j=1}^{N_{RX}} \hat{E}_s^{(j)}}{\sum_{j=1}^{N_{RX}} N_{oc}^{(j)}},$$

where  $N_{RX}$  denotes the number of receiver antenna connectors and the superscript receiver antenna connector  $j$ . The above SNR definition assumes that the REs are not precoded. The SNR definition does not account for any gain which can be associated to the precoding operation. The relative power of physical channels transmitted is defined in Table C.3.2-1. The SNR requirement applies for the UE categories and CA capabilities given for each test.

For enhanced performance requirements type A, the SINR is defined as

## 10 MBMS Performance

### 10.1 FDD MBMS performance (Fixed Reference Channel)

#### 10.1.1 Test purpose

This test verifies the performance of FDD MBMS with a given SNR for which the average BLER remains below a given reference value.

#### 10.1.2 Test applicability

This test applies to all types of E-UTRA FDD UE supporting MBMS release 9 and forward.

#### 10.1.3 Minimum conformance requirements

The parameters specified in Table 10.1.3-1 are valid for all FDD tests unless otherwise stated. For the requirements defined in this section, the difference between CRS EPRE and the MBSFN RS EPRE should be set to 0 dB as the UE demodulation performance might be different when this condition is not met (e.g. in scenarios where power offsets are present, such as scenarios when reserved cells are present).

**Table 10.1.3-1: Common Test Parameters (FDD)**

| Parameter  | Unit      | Value       |
|--|-----------|-------------|
| Number of HARQ processes   | Processes | None        |
| Subcarrier spacing   | kHz       | 15 kHz      |
| Allocated subframes per Radio Frame (Note 1)   |           | 6 subframes |
| Number of OFDM symbols for PDCCH   |           | 2           |
| Cyclic Prefix  |           | Extended    |
| Note 1: For FDD mode, up to 6 subframes (#1/2/3/6/7/8) are available for MBMS, in line with TS 36.331. |           |             |

The receive characteristic of MBMS is determined by the BLER. The requirement is valid for all RRC states for which the UE has capabilities for MBMS.

For the parameters specified in Table 10.1.3-1 and Table 10.1.3-2 and Annex A.3.8.1, the average downlink SNR shall be below the specified value for the BLER shown in Table 10.1.3-3.

**Table 10.1.3-2: Test Parameters for Testing**

| Parameter                 |          | Unit      | Test 1-4   |
|---------------------------|----------|-----------|------------|
| Downlink power allocation | $\rho_A$ | dB        | 0          |
|                           | $\rho_B$ | dB        | 0 (Note 1) |
|                           | $\sigma$ | dB        | 0          |
| $N_{oc}$ at antenna port  |          | dBm/15kHz | -98        |
| Note 1: $P_B = 0$         |          |           |            |

Table 10.1.3-3: Minimum performance

| Test number | Bandwidth | Reference Channel | OCNG Pattern | Propagation condition               | Correlation Matrix and antenna | Reference value |         | MBMS UE Category |
|-------------|-----------|-------------------|--------------|-------------------------------------|--------------------------------|-----------------|---------|------------------|
|             |           |                   |              |                                     |                                | BLER (%)        | SNR(dB) |                  |
| 1           | 10 MHz    | R.37 FDD          | OP.4 FDD     | MBSFN channel model (Table B.2.6-1) | 1x2 low                        | 1               | 4.1     | $\geq 1$         |
| 2           | 10 MHz    | R.38 FDD          | OP.4 FDD     |                                     |                                |                 | 11.0    | $\geq 1$         |
| 3           | 10 MHz    | R.39 FDD          | OP.4 FDD     |                                     |                                |                 | 20.1    | $\geq 2$         |
|             | 5 MHz     | R.39-1 FDD        | OP.4 FDD     |                                     |                                |                 | 20.5    | 1                |

The normative reference for this requirement is TS 36.101 [2] clause 10.1.

## 10.1.4 Test description

### 10.1.4.1 Initial conditions

Test Environment: Normal, as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: Mid Range, as defined in TS 36.508 [7] clause 4.3.1.

Channel Bandwidths to be tested: As specified per test number in Table 10.1.3-3 as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS, the faders and AWGN noise source to the UE antenna connector (s) as shown in TS 36.508 [7] Annex A, Figure A.9.
2. The parameter settings for the cell are set up according to Table 10.1.3-1.
3. The downlink signals are initially set up according to Annex C.1 and Annex C.3.2 and uplink signals according to Annex H.1 and H.3.2.
4. Propagation conditions are set according to Annex B clause B.0.
5. Ensure the UE is in State 2A-RF according to TS 36.508 [7] clause 5.2A.1A. Message contents are defined in clause 10.1.4.3.
6. SS transmits *MBSFNAreaConfiguration* message. Message content is defined in clause 10.1.4.3.
7. Wait for a period equal to the MCCH modification period to make sure the UE has received the *MBSFNAreaConfiguration* message.
8. SS continues with the generic procedures described in TS 36.508 [7] clause 4.5.3A.3 and 4.5.4.3 and ensures the UE is in State 4 according to TS 36.508 [7] clause 4.5.4 and the UE test loop Mode C is activated. Message contents are defined in clause 10.1.4.3.
9. SS is configured to include 10 MBMS packets in one TB.

### 10.1.4.2 Test procedure

1. Initialise the variables  $M_{tot}$  and  $M_{ok}$  as 0. Set the parameters of bandwidth, reference channel, the propagation condition, antenna configuration and the SNR according to Table 10.1.5-1 as appropriate.
2. SS shall send MBMS Packets on the MTCH radio bearer for the test time specified in Table G.6.4-1. SS stores the number of the transmitted MBMS Packets on the MTCH in the current test iteration in the variable  $M_{tot}$ .
3. SS shall send a "UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST" message and wait for the UE to respond with a "UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE" reporting the received MBMS Packet counter value. Message contents are defined in clause 10.1.4.3. SS calculates the variable  $M_{ok}$  as (current counter value - counter value at last test iteration).

4. SS shall compute the BLER as the following:

$$\text{The BLER} = (M_{\text{tot}} - M_{\text{ok}}) / M_{\text{tot}}$$

5. Repeat steps from 1 to 4 for each subtest in Table 10.1.5-1 as appropriate.

#### 10.1.4.3 Message contents

Message contents are according to TS 36.508 [7] clauses 4.4, 4.6 and 4.7A with following exceptions:

**Table 10.1.4.3-1: SystemInformationBlockType2: Additional FDD MBMS performance (Fixed Reference Channel)**

| Derivation Path: 36.508 table 4.4.3.3-1  |              |         |           |
|--|--------------|---------|-----------|
| Information Element  | Value/remark | Comment | Condition |
| SystemInformationBlockType2 ::= SEQUENCE {                                       |              |         |           |
| mbsfn-SubframeConfigList SEQUENCE (SIZE (1..maxMBSFN-Allocations)) OF SEQUENCE { |              |         |           |
| radioframeAllocationPeriod   | n1           |         |           |
| radioframeAllocationOffset   | 0            |         |           |
| subframeAllocation CHOICE{   |              |         |           |
| oneFrame   | '111111' B   |         |           |
| }  |              |         |           |
| }  |              |         |           |
| }  |              |         |           |

**Table 10.1.4.3-2: MBSFNAreaConfiguration message: Additional FDD MBMS performance (Fixed Reference Channel)**

| Derivation Path: 36.508, Table 4.6.1-4A                                   |              |                                       |                        |
|---|--------------|---------------------------------------|------------------------|
| Information Element   | Value/remark | Comment                               | Condition              |
| MBSFNAreaConfiguration-r9 ::= SEQUENCE {                                  |              |                                       |                        |
| commonSF-Alloc-r9 SEQUENCE (SIZE (1..maxMBSFN-Allocations)) OF SEQUENCE { |              |                                       |                        |
| radioframeAllocationPeriod  | n1           |                                       |                        |
| radioframeAllocationOffset  | 0            |                                       |                        |
| subframeAllocation CHOICE {   |              |                                       |                        |
| oneFrame  | '111111' B   |                                       |                        |
| }   |              |                                       |                        |
| }   |              |                                       |                        |
| commonSF-AllocPeriod-r9   | rf8          |                                       |                        |
| pmch-InfoList-r9 SEQUENCE (SIZE (0..maxPMCH-PerMBSFN)) OF SEQUENCE {      |              |                                       |                        |
| pmch-Config-r9 SEQUENCE {   |              |                                       |                        |
| sf-AllocEnd-r9  | 47           | 48 active subframes in 8 Radio-frames |                        |
| dataMCS-r9  | 4            | Test number 1                         | R.37 FDD               |
|   | 12           | Test number 2                         | R.38 FDD               |
|   | 20           | Test number 3                         | R.39 FDD<br>R.39-1 FDD |
| mch-SchedulingPeriod-r9   | rf8          |                                       |                        |
| }   |              |                                       |                        |
| ...   |              |                                       |                        |
| }   |              |                                       |                        |

**Table 10.1.4.3-3: ACTIVATE TEST MODE: Additional FDD MBMS performance (Fixed Reference Channel)**

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE C

**Table 10.1.4.3-4: CLOSE UE TEST LOOP: Additional FDD MBMS performance (Fixed Reference Channel)**

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE C

**Table 10.1.4.3-5: SystemInformationBlockType13: Additional FDD MBMS performance (Fixed Reference Channel)**

| Derivation Path: 36.508 table 4.4.3.3-13    |              |               |           |
|---|--------------|---------------|-----------|
| Information Element                         | Value/remark | Comment       | Condition |
| SystemInformationBlockType13 ::= SEQUENCE { |              |               |           |
| mbsfn-AreaInfoList-r9 SEQUENCE              |              |               |           |
| (SIZE(1..maxMBSFN-Area)) OF SEQUENCE {      |              |               |           |
| mcch-Config-r9 SEQUENCE {                   |              |               |           |
| mcch-RepetitionPeriod-r9                    | rf32         |               |           |
| mcch-Offset-r9                              | 0            |               |           |
| mcch-ModificationPeriod-r9                  | rf512        |               |           |
| sf-AllocInfo-r9                             | '100000' B   |               |           |
| signallingMCS-r9                            | n7           | Test number 1 | QPSK      |
|   | n13          | Test number 2 | 16QAM     |
|   | n19          | Test number 3 | 64QAM     |
| }   |              |               |           |
| }   |              |               |           |
| notificationConfig-r9 SEQUENCE {            |              |               |           |
| notificationRepetitionCoeff-r9              | n4           |               |           |
| notificationOffset-r9                       | 0            |               |           |
| notificationSF-Index-r9                     | 1            | Subframe #1   |           |
| }   |              |               |           |
| }   |              |               |           |

## 10.1.5 Test requirement

For the parameters specified in Table 10.1.3-1, Table 10.1.3-2, Annex A.3.8.1, and SNR in Table 10.1.5-1, the value for the BLER in step 4 shall be below the test limit in Annex G.6.3 for all subtests shown in Table 10.1.5-1.

**Table 10.1.5-1: Test requirement**

| Test number | Bandwidth | Reference Channel | OCNG Pattern | Propagation condition               | Correlation Matrix and antenna | Reference value |         | MBMS UE Category |
|-------------|-----------|-------------------|--------------|-------------------------------------|--------------------------------|-----------------|---------|------------------|
|             |           |                   |              |                                     |                                | BLER (%)        | SNR(dB) |                  |
| 1           | 10 MHz    | R.37 FDD          | OP.4 FDD     | MBSFN channel model (Table B.2.6-1) | 1x2 low                        | 1               | 5       | ≥1               |
| 2           | 10 MHz    | R.38 FDD          | OP.4 FDD     |                                     |                                |                 | 11.9    | ≥1               |
| 3           | 10 MHz    | R.39 FDD          | OP.4 FDD     |                                     |                                |                 | 21.0    | ≥2               |
|             | 5 MHz     | R.39-1 FDD        | OP.4 FDD     |                                     |                                |                 | 21.4    | 1                |

## 10.1\_1 FDD MBMS performance (Fixed Reference Channel) (Release 13 and forward)

### 10.1\_1.1 Test purpose

Same test purpose as in clause 10.1.1.

## 10.1\_1.2 Test applicability

This test applies to all types of E-UTRA FDD UE supporting MBMS release 13 and forward.

## 10.1\_1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 10.1.3 with the following exceptions:

- Instead of Table Table 10.1.3-3 → use Table Table 10.1\_1.3-1.

**Table 10.1\_1.3-1: Minimum performance**

| Test number | Bandwidth | Reference Channel | OCNG Pattern | Propagation condition               | Correlation Matrix and antenna | Reference value |         | MBMS UE Category |
|-------------|-----------|-------------------|--------------|-------------------------------------|--------------------------------|-----------------|---------|------------------|
|             |           |                   |              |                                     |                                | BLER (%)        | SNR(dB) |                  |
| 4           | 1.4 MHz   | R.40 FDD          | OP.4 FDD     | MBSFN channel model (Table B.2.6-1) | 1x2 low                        | 1               | 6.6     | ≥1               |

## 10.1\_1.4 Test description

### 10.1\_1.4.1 Initial conditions

Same initial conditions as in clause 10.1.4.1 with the following exceptions:

- Instead of Table 10.1.3-3 → use Table 10.1\_1.3-1.

### 10.1\_1.4.2 Test procedure

Same test procedure as in clause 10.1\_1.4.2 with the following exceptions:

- Instead of Table 10.1.5-1 → use Table 10.1\_1.5-1.

### 10.1\_1.4.3 Message contents

Same message contents as in clause 10.1.4.3 for Test number 1.

## 10.1\_1.5 Test requirement

Same test requirements as in clause 10.1.5 with the following exceptions:

- Instead of Table 10.1.5-1 → use Table 10.1\_1.5-1.

**Table 10.1\_1.5-1: Test requirement**

| Test number | Bandwidth | Reference Channel | OCNG Pattern | Propagation condition               | Correlation Matrix and antenna | Reference value |         | MBMS UE Category |
|-------------|-----------|-------------------|--------------|-------------------------------------|--------------------------------|-----------------|---------|------------------|
|             |           |                   |              |                                     |                                | BLER (%)        | SNR(dB) |                  |
| 4           | 1.4 MHz   | R.40 FDD          | OP.4 FDD     | MBSFN channel model (Table B.2.6-1) | 1x2 low                        | 1               | 7.5     | ≥1               |



## 10.2 TDD MBMS performance (Fixed Reference Channel)

### 10.2.1 Test purpose

This test verifies the performance of TDD MBMS with a given SNR for which the average BLER remains below a given reference value.

### 10.2.2 Test applicability

This test applies to all types of E-UTRA TDD UE supporting MBMS release 9 and forward.

### 10.2.3 Minimum conformance requirements

The parameters specified in Table 10.2.3-1 are valid for all TDD tests unless otherwise stated. For the requirements defined in this section, the difference between CRS EPRE and the MBSFN RS EPRE should be set to 0 dB as the UE demodulation performance might be different when this condition is not met (e.g. in scenarios where power offsets are present, such as scenarios when reserved cells are present).

**Table 10.2.3-1: Common Test Parameters (TDD)**

| Parameter   | Unit      | Value       |
|---|-----------|-------------|
| Number of HARQ processes  | Processes | None        |
| Subcarrier spacing  | kHz       | 15 kHz      |
| Allocated subframes per Radio Frame (Note 1)  |           | 5 subframes |
| Number of OFDM symbols for PDCCH  |           | 2           |
| Cyclic Prefix   |           | Extended    |
| Note 1: For TDD mode, in line with TS 36.331, Uplink-Downlink Configuration 5 is proposed, up to 5 subframes (#3/4/7/8/9) are available for MBMS. |           |             |

The receive characteristic of MBMS is determined by the BLER. The requirement is valid for all RRC states for which the UE has capabilities for MBMS.

For the parameters specified in Table 10.2.3-1 and Table 10.2.3-2 and Annex A.3.8.2, the average downlink SNR shall be below the specified value for the BLER shown in Table 10.2.3-3.

**Table 10.2.3-2: Test Parameters for Testing**

| Parameter                 |          | Unit      | Test 1-4   |
|---------------------------|----------|-----------|------------|
| Downlink power allocation | $\rho_A$ | dB        | 0          |
|                           | $\rho_B$ | dB        | 0 (Note 1) |
|                           | $\sigma$ | dB        | 0          |
| $N_{oc}$ at antenna port  |          | dBm/15kHz | -98        |
| Note 1: $P_B = 0$ .       |          |           |            |

Table 10.2.3-3: Minimum performance

| Test number | Bandwidth | Reference Channel | OCNG Pattern | Propagation condition               | Correlation Matrix and antenna | Reference value |         | MBMS UE Category |
|-------------|-----------|-------------------|--------------|-------------------------------------|--------------------------------|-----------------|---------|------------------|
|             |           |                   |              |                                     |                                | BLER (%)        | SNR(dB) |                  |
| 1           | 10 MHz    | R.37 TDD          | OP.4 TDD     | MBSFN channel model (Table B.2.6-1) | 1x2 low                        | 1               | 3.4     | $\geq 1$         |
| 2           | 10 MHz    | R.38 TDD          | OP.4 TDD     |                                     |                                |                 | 11.1    | $\geq 1$         |
| 3           | 10 MHz    | R.39 TDD          | OP.4 TDD     |                                     |                                |                 | 20.1    | $\geq 2$         |
|             | 5MHz      | R.39-1 TDD        | OP.4 TDD     |                                     |                                |                 | 20.5    | 1                |

The normative reference for this requirement is TS 36.101 [2] clause 10.2.

## 10.2.4 Test description

### 10.2.4.1 Initial conditions

Test Environment: Normal, as defined in TS 36.508 [7] clause 4.1.

Frequencies to be tested: Mid Range, as defined in TS 36.508 [7] clause 4.3.1.

Channel Bandwidths to be tested: As specified per test number in Table 10.2.3-3 as defined in TS 36.508 [7] clause 4.3.1.

1. Connect the SS, the faders and AWGN noise source to the UE antenna connector (s) as shown in TS 36.508 [7] Annex A, Figure A.9.
2. The parameter settings for the cell are set up according to Table 10.2.3-1.
3. The downlink signals are initially set up according to Annex C.1 and Annex C.3.2 and uplink signals according to Annex H.1 and H.3.2.
4. Propagation conditions are set according to Annex B clause B.0.
5. Ensure the UE is in State 2A-RF according to TS 36.508 [7] clause 5.2A.1A. Message contents are defined in clause 10.2.4.3.
6. SS transmits *MBSFNAreaConfiguration* message. Message content is defined in clause 10.2.4.3.
7. Wait for a period equal to the MCCH modification period to make sure the UE has received the *MBSFNAreaConfiguration* message.
8. SS continues with the generic procedures described in TS 36.508 [7] clause 4.5.3A.3 and 4.5.4.3 and ensures the UE is in State 4 according to TS 36.508 [7] clause 4.5.4 and the UE test loop Mode C is activated. Message contents are defined in clause 10.2.4.3.
9. SS is configured to include 10 MBMS packets in one TB.

### 10.2.4.2 Test procedure

1. Initialise the variables  $M_{tot}$  and  $M_{ok}$  as 0. Set the parameters of bandwidth, reference channel, the propagation condition, antenna configuration and the SNR according to Table 10.2.5-1 as appropriate.
2. SS shall send MBMS Packets on the MTCH radio bearer for the test time specified in Table G.6.4-1. SS stores the number of the transmitted MBMS Packets on the MTCH in the current test iteration in the variable  $M_{tot}$ .
3. SS shall send a "UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST" message and wait for the UE to respond with a "UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE" reporting the received MBMS Packet counter value. Message contents are defined in clause 10.2.4.3. SS calculates the variable  $M_{ok}$  as (current counter value - counter value at last test iteration).

4. SS shall compute the BLER as the following:

$$\text{The BLER} = (M_{\text{tot}} - M_{\text{ok}}) / M_{\text{tot}}$$

5. Repeat steps from 1 to 4 for each subtest in Table 10.2.5-1 as appropriate.

### 10.2.4.3 Message contents

Message contents are according to TS 36.508 [7] clauses 4.4, 4.6 and 4.7A with following exceptions:

**Table 10.2.4.3-1: SystemInformationBlockType2: Additional TDD MBMS performance (Fixed Reference Channel)**

| Derivation Path: 36.508 table 4.4.3.3-1  |              |                          |           |
|--|--------------|--------------------------|-----------|
| Information Element  | Value/remark | Comment                  | Condition |
| SystemInformationBlockType2 ::= SEQUENCE {                                       |              |                          |           |
| mbsfn-SubframeConfigList SEQUENCE (SIZE (1..maxMBSFN-Allocations)) OF SEQUENCE { |              |                          |           |
| radioframeAllocationPeriod   | n1           |                          |           |
| radioframeAllocationOffset   | 0            |                          |           |
| subframeAllocation CHOICE{   |              |                          |           |
| oneFrame   | '111110' B   | The last bit is not used |           |
| }  |              |                          |           |
| }  |              |                          |           |
| }  |              |                          |           |

**Table 10.2.4.3-2: MBSFNAreaConfiguration message: Additional TDD MBMS performance (Fixed Reference Channel)**

| Derivation Path: 36.508, Table 4.6.1-4A                                   |              |                                       |                        |
|---|--------------|---------------------------------------|------------------------|
| Information Element   | Value/remark | Comment                               | Condition              |
| MBSFNAreaConfiguration-r9 ::= SEQUENCE {                                  |              |                                       |                        |
| commonSF-Alloc-r9 SEQUENCE (SIZE (1..maxMBSFN-Allocations)) OF SEQUENCE { |              |                                       |                        |
| radioframeAllocationPeriod  | n1           |                                       |                        |
| radioframeAllocationOffset  | 0            |                                       |                        |
| subframeAllocation CHOICE {   |              |                                       |                        |
| oneFrame  | '111110' B   | The last bit is not used              |                        |
| }   |              |                                       |                        |
| }   |              |                                       |                        |
| commonSF-AllocPeriod-r9   | rf8          |                                       |                        |
| pmch-InfoList-r9 SEQUENCE (SIZE (0..maxPMCH-PerMBSFN)) OF SEQUENCE {      |              |                                       |                        |
| pmch-Config-r9 SEQUENCE {   |              |                                       |                        |
| sf-AllocEnd-r9  | 39           | 40 active subframes in 8 Radio-frames |                        |
| dataMCS-r9  | 4            | Test number 1                         | R.37 TDD               |
|   | 12           | Test number 2                         | R.38 TDD               |
|   | 20           | Test number 3                         | R.39 TDD<br>R.39-1 TDD |
| mch-SchedulingPeriod-r9   | rf8          |                                       |                        |
| }   |              |                                       |                        |
| }   |              |                                       |                        |

**Table 10.2.4.3-3: ACTIVATE TEST MODE: Additional TDD MBMS performance (Fixed Reference Channel)**

Derivation Path: 36.508, Table 4.7A-1, condition UE TEST LOOP MODE C

**Table 10.2.4.3-4: CLOSE UE TEST LOOP: Additional TDD MBMS performance (Fixed Reference Channel)**

Derivation Path: 36.508, Table 4.7A-3, condition UE TEST LOOP MODE C

**Table 10.2.4.3-5: SystemInformationBlockType13: Additional TDD MBMS performance (Fixed Reference Channel)**

| Derivation Path: 36.508 table 4.4.3.3-13    |              |               |           |
|---|--------------|---------------|-----------|
| Information Element                         | Value/remark | Comment       | Condition |
| SystemInformationBlockType13 ::= SEQUENCE { |              |               |           |
| mbsfn-AreaInfoList-r9 SEQUENCE              |              |               |           |
| (SIZE(1..maxMBSFN-Area)) OF SEQUENCE {      |              |               |           |
| mcch-Config-r9 SEQUENCE {                   |              |               |           |
| mcch-RepetitionPeriod-r9                    | rf32         |               |           |
| mcch-Offset-r9                              | 0            |               |           |
| mcch-ModificationPeriod-r9                  | rf512        |               |           |
| sf-AllocInfo-r9                             | '100000' B   |               |           |
| signallingMCS-r9                            | n7           | Test number 1 | QPSK      |
|   | n13          | Test number 2 | 16QAM     |
|   | n19          | Test number 3 | 64QAM     |
| }   |              |               |           |
| }   |              |               |           |
| notificationConfig-r9 SEQUENCE {            |              |               |           |
| notificationRepetitionCoeff-r9              | n4           |               |           |
| notificationOffset-r9                       | 0            |               |           |
| notificationSF-Index-r9                     | 1            | Subframe #3   |           |
| }   |              |               |           |
| }   |              |               |           |

**Table 10.2.4.3-6: TDD-Config-DEFAULT: Additional TDD MBMS performance (Fixed Reference Channel)**

| Derivation Path: TS 36.508 Table 5.3.1-1 |              |         |           |
|--|--------------|---------|-----------|
| Information Element                      | Value/remark | Comment | Condition |
| TDD-Config-DEFAULT ::= SEQUENCE {        |              |         |           |
| subframeAssignment                       | sa5          |         |           |
| }  |              |         |           |

**Table 10.2.4.3-7: PUCCH-ConfigDedicated-DEFAULT: Additional TDD MBMS performance (Fixed Reference Channel)**

| Derivation Path: 36.508 Table 4.6.3-9        |              |         |           |
|--|--------------|---------|-----------|
| Information Element                          | Value/remark | Comment | Condition |
| PUCCH-ConfigDedicated-DEFAULT ::= SEQUENCE { |              |         |           |
| tdAckNackFeedbackMode                        | bundling     |         |           |
| }  |              |         |           |

## 10.2.5 Test requirement

For the parameters specified in Table 10.2.3-1, Table 10.2.3-2, Annex A.3.8.2, and SNR in Table 10.2.5-1, the value for the BLER in step 4 shall be below the test limit in Annex G.6.3 for all subtests shown in Table 10.2.5-1.

**Table 10.2.5-1: Test requirement**

| Test number | Bandwidth | Reference Channel | OCNG Pattern | Propagation condition               | Correlation Matrix and antenna | Reference value |         | MBMS UE Category |
|-------------|-----------|-------------------|--------------|-------------------------------------|--------------------------------|-----------------|---------|------------------|
|             |           |                   |              |                                     |                                | BLER (%)        | SNR(dB) |                  |
| 1           | 10 MHz    | R.37 TDD          | OP.4 TDD     | MBSFN channel model (Table B.2.6-1) | 1x2 low                        | 1               | 4.3     | $\geq 1$         |
| 2           | 10 MHz    | R.38 TDD          | OP.4 TDD     |                                     |                                |                 | 12      | $\geq 1$         |
| 3           | 10 MHz    | R.39 TDD          | OP.4 TDD     |                                     |                                |                 | 21.0    | $\geq 2$         |
|             | 5MHz      | R.39-1 TDD        | OP.4 TDD     |                                     |                                |                 | 21.4    | 1                |

## 10.2\_1 TDD MBMS performance (Fixed Reference Channel) (Release 13 and forward)

### 10.2.1 Test purpose

Same test purpose as in clause 10.2.1.

### 10.2.2 Test applicability

This test applies to all types of E-UTRA TDD UE supporting MBMS release 13 and forward.

### 10.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 10.2.3 with the following exceptions:

- Instead of Table Table 10.2.3-3 → use Table Table 10.2\_1.3-1.

**Table 10.2\_1.3-1: Minimum performance**

| Test number | Bandwidth | Reference Channel | OCNG Pattern | Propagation condition               | Correlation Matrix and antenna | Reference value |         | MBMS UE Category |
|-------------|-----------|-------------------|--------------|-------------------------------------|--------------------------------|-----------------|---------|------------------|
|             |           |                   |              |                                     |                                | BLER (%)        | SNR(dB) |                  |
| 4           | 1.4 MHz   | R.40 TDD          | OP.4 TDD     | MBSFN channel model (Table B.2.6-1) | 1x2 low                        | 1               | 5.8     | $\geq 1$         |

The normative reference for this requirement is TS 36.101 [2] clause 10.2.

### 10.2.4 Test description

#### 10.2.4.1 Initial conditions

Same initial conditions as in clause 10.2.4.1 with the following exceptions:

- Instead of Table 10.2.3-3 → use Table 10.2\_1.3-1.

#### 10.2\_1.4.2 Test procedure

Same test procedure as in clause 10.2.4.2 with the following exceptions:

- Instead of Table 10.2.5-1 → use Table 10.2\_1.5-1.

### 10.2.4.3 Message contents

Same message contents as in clause 10.2.4.3 for Test number 1.

### 10.2\_1.5 Test requirement

Same test requirements as in clause 10.2.5 with the following exceptions:

- Instead of Table 10.2.5-1 → use Table 10.2\_1.5-1.

**Table 10.2\_1.5-1: Test requirement**

| Test number | Bandwidth | Reference Channel | OCNG Pattern | Propagation condition               | Correlation Matrix and antenna | Reference value |         | MBMS UE Category |
|-------------|-----------|-------------------|--------------|-------------------------------------|--------------------------------|-----------------|---------|------------------|
|             |           |                   |              |                                     |                                | BLER (%)        | SNR(dB) |                  |
| 4           | 1.4 MHz   | R.40 TDD          | OP.4 TDD     | MBSFN channel model (Table B.2.6-1) | 1x2 low                        | 1               | 6.7     | ≥1               |